

## CM6700 Matrix Switcher/Controller

### Installation/ Operation Manual

C523M-G (11/01)



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## IMPORTANT SAFEGUARDS AND WARNINGS

Prior to installation and use of this product, the following WARNINGS should be observed.

1. Installation and servicing should only be done by qualified service personnel and conform to all local codes.
2. This unit is designed for indoor use only and must not be installed where exposed to rain and moisture.
3. The installation method and materials should be capable of supporting four times the weight of the unit and equipment.
4. After replacement/repair of this unit's electrical components, conduct a resistance measurement between line and exposed parts to verify the exposed parts have not been connected to line circuitry.

The product and/or manual may bear the following marks:



This symbol indicates that dangerous voltage constituting a risk of electric shock is present within this unit.



This symbol indicates that there are important operating and maintenance instructions in the literature accompanying this unit.

CAUTION:
RISK OF ELECTRIC SHOCK. DO NOT OPEN.

Please thoroughly familiarize yourself with the information in this manual prior to installation and operation.

## MODELS

CM6700-MXB2	Matrix switcher/controller with 16 video inputs and 2 monitor outputs, 120 VAC, 50/60 Hz (FCC, UL, cUL)
CM6700-MXB2-X	Same as CM6700-MXB2, PAL-configured for 230 VAC and 50 Hz operation (CE)
CM6700-MXB4	Same as CM6700-MXB2 with two-monitor expansion card (CM6700VMC2) pre-installed (FCC, UL, cUL)
CM6700-MXB4-X	Same as CM6700-MXB4, PAL-configured for 230 VAC and 50 Hz operation (CE)

## ASSOCIATED EQUIPMENT

KBD100	Desktop keyboard with full switching and programming capabilities
KBD200	Desktop keyboard with full switching and programming capabilities, plus push-button control of PTZ functions
KBD300	Desktop keyboard with full switching and programming capabilities, plus joystick control of PTZ functions
KBD300V	Desktop keyboard with full switching and programming capabilities as well as joystick control of PTZ functions; includes five-inch diagonal monitor screen and interface cable
KBD300V-X	Same as KBD300V, PAL-configured for 230 VAC and 50 Hz operation
CM6700-VMC2	Expansion card with two monitor outputs
CM6700-VMC2-X	Expansion card with two monitor outputs, PAL-configured
KBDKIT	Wiring kit for connecting KBD100, KBD200, and KBD300 keyboards to remote keyboard port; includes two RJ-45 wall blocks and a transformer to convert 120 VAC to 12 VAC for keyboard power
KBDKIT-X	Wiring kit for connecting KBD100, KBD200, and KBD300 keyboards to remote keyboard port; includes two RJ-45 wall blocks and a transformer to convert 230 VAC to 12 VAC for keyboard power
CM9760-RDU	Passive two-wire receiver distribution panel (1 input X 16 outputs) with RJ-45 input and screw terminal outputs, primarily used for "star" configuration of as many as 16 receivers

## DESCRIPTION

Pelco's CM6700 Matrix Switcher/Controller is a keyboard-controlled cross-point video matrix switcher/control unit (SCU) that allows you to route up to sixteen video images to as many as four monitors while controlling camera positions.

### Applications

The CM6700 SCU can be controlled from a local or remote keyboard (refer to Figure 1), used with a multiplexer to display multiple camera views on a monitor (refer to Figure 2), and interfaced to a distant keyboard via dial-up telephone circuits through appropriate interface equipment (refer to Figure 3). The CM6700 features menu-driven, password-protected programming. The CM6700 can also be controlled from a personal computer using ASCII commands.

### Keyboards

Camera positioning options can be programmed and controlled from a keyboard. Up to eight keyboards can be connected to the CM6700 SCU, allowing monitoring stations that share a common monitor to each have a keyboard. Four different keyboards are available to use with the CM6700 SCU, each with varying features and different costs. (Keyboard types can be mixed in a system – See *Associated Equipment*.)

### Sequences, Presets, and Patterns

Special programmed operations include sequences, presets and patterns.

A sequence allows you to see a routine of 16 camera views on your monitor over and over again. The sequence can be operated automatically or manually. The order in which the views appear and the time each view remains can be programmed.

A preset allows you to direct a pan/tilt/zoom (camera positioning system) to move to a certain position on command or as a result of an alarm. In addition to moving the camera, a descriptive title can appear on the screen. (Presets are not available with the KBD100 keyboard.)

With a pattern you can program a camera positioning system to move around its viewing area in a repeating pattern. The number and time length of patterns varies with different positioning systems. (Patterns are not available with the KBD100 keyboard.)

### Alarm Inputs

Eighteen alarm inputs are provided. These can be programmed to cause the display to switch automatically to the camera with the alarm and/or to operate one of three auxiliary outputs. Sixteen of the inputs are associated with individual cameras. Two of the inputs activate group camera sequences.

### Auxiliary Outputs

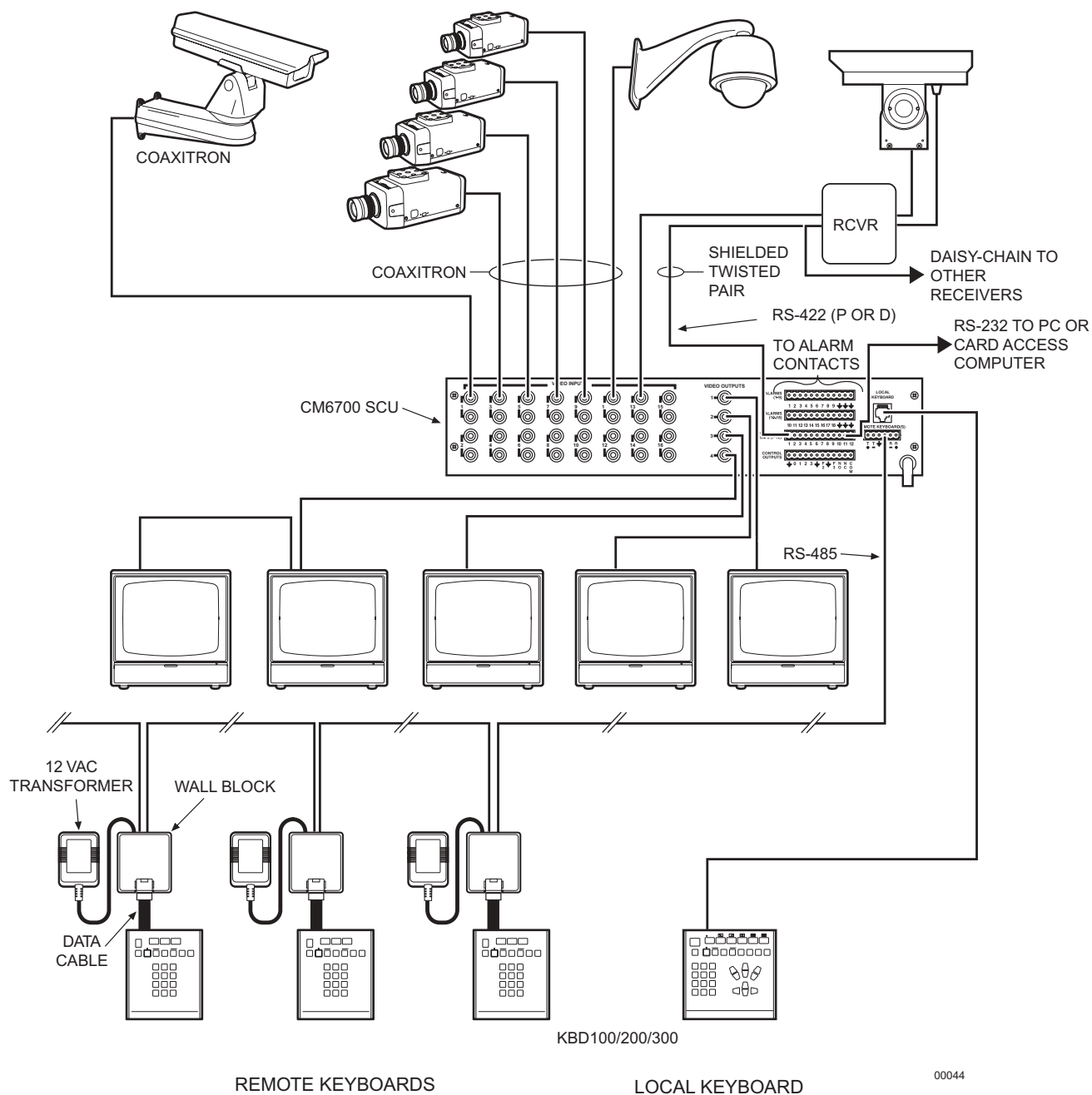
Three auxiliary outputs are provided. One output is a relay and two are open collector (TTL) outputs. Auxiliary outputs are activated at the keyboard (except KBD100).

### Protocols

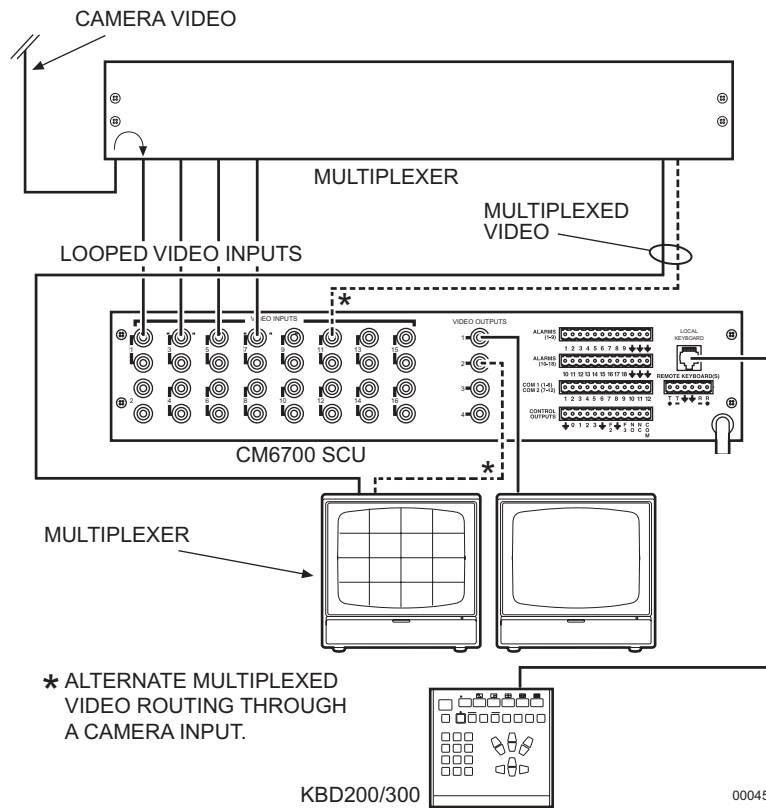
The CM6700 works with Pelco's Coaxitron®, D, and P protocol receivers.

### Power, Mounting Methods

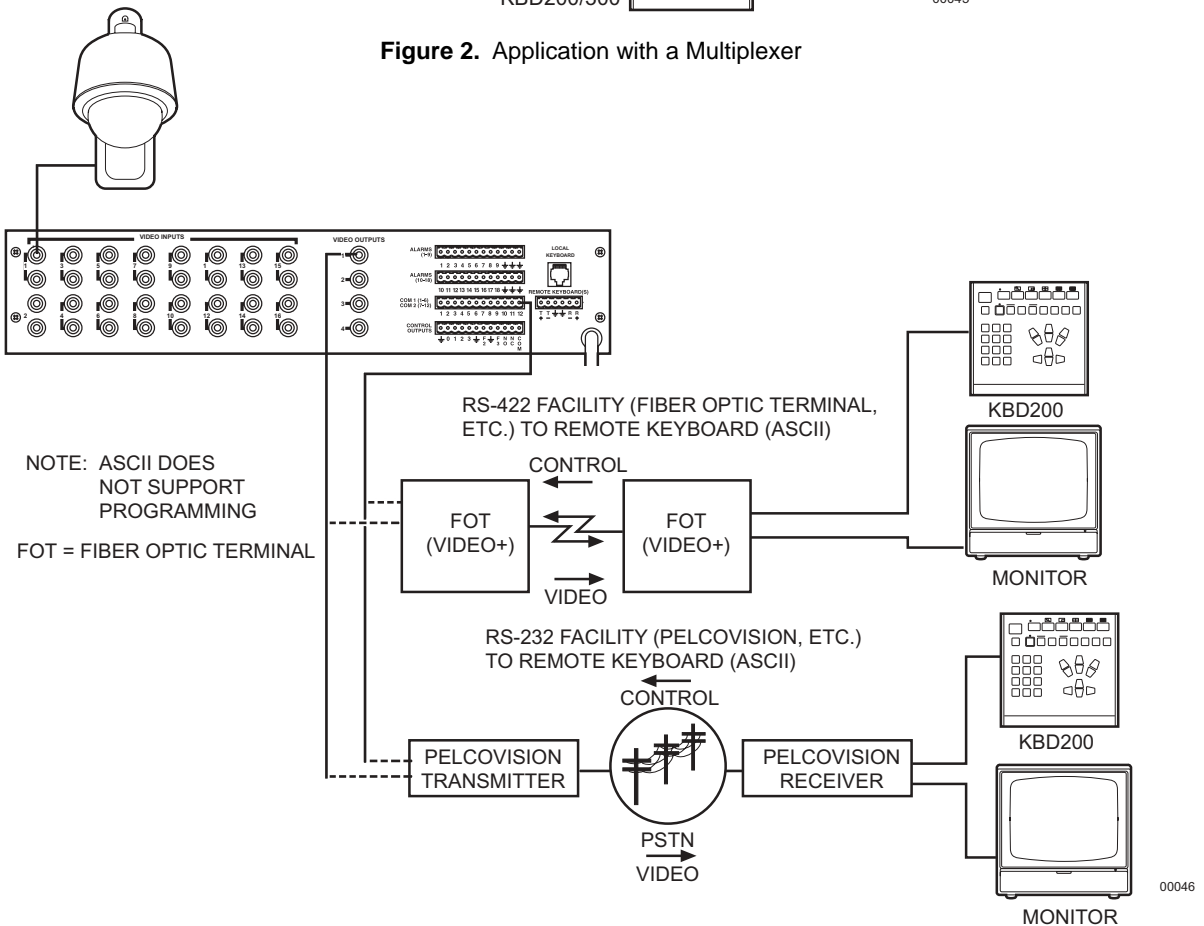
The CM6700 SCU operates on 120 VAC or 230 VAC, depending on the model. The compact case mounts in 3-1/2 inches of vertical space in a 19-inch equipment bay or to a wall or table top.



**Figure 1. CM6700 Applications**



**Figure 2.** Application with a Multiplexer

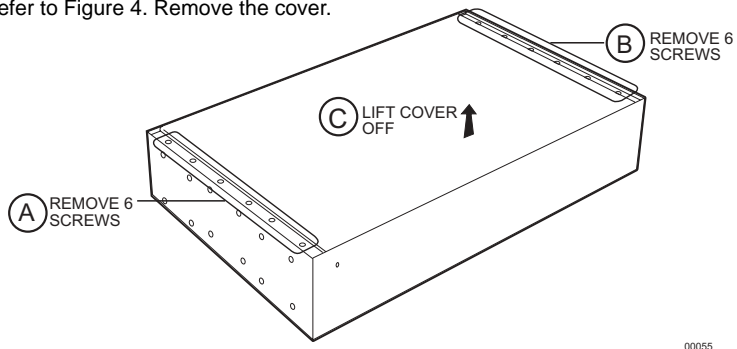


**Figure 3.** Applications with Remote Keyboards (ASCII, KBD200 Only)

## INSTALLATION

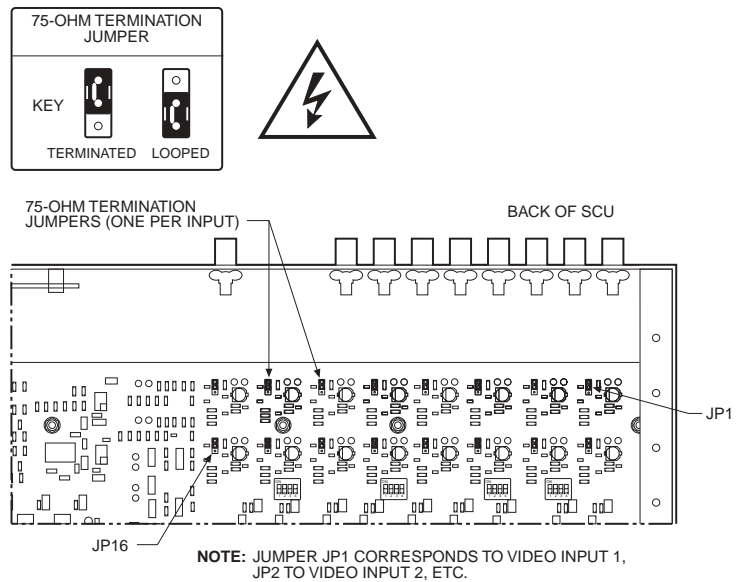
### 1 SET OPTIONS

1. Refer to Figure 4. Remove the cover.



**Figure 4.** Cover Removal

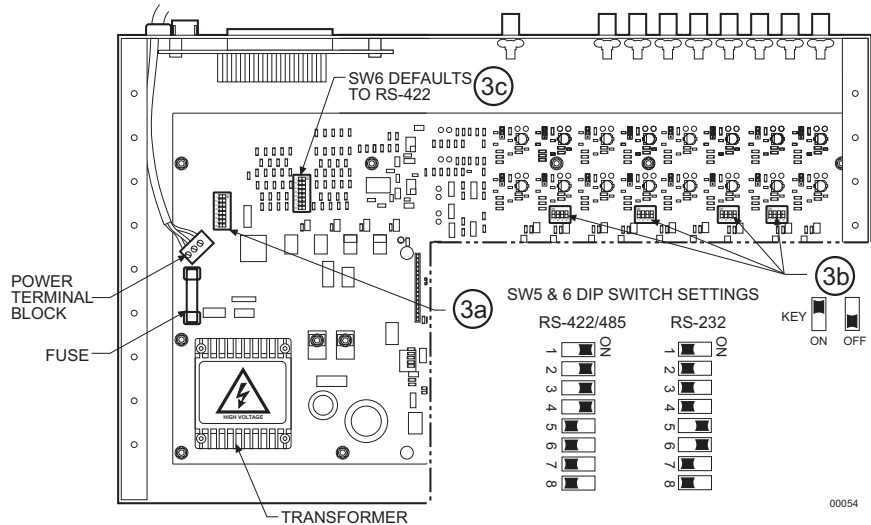
2. Refer to Figure 5. Set jumpers according to your system requirements. JP1-JP16 are used to terminate the video input with a 75-ohm resistor or to unterminate the video (looping). The factory default has the jumper installed in the terminating position. If you are connecting only a camera to an input, leave the jumper in the terminating position. If you are looping the video to another device, move the jumper to the looped position, and terminate at the equipment connected to the looping output.



**Figure 5.** Video Termination Jumpers



3. Refer to Figure 6. Set DIP switches.
  - a. Communication port 2 is available for a PC or remote keyboard operating in ASCII mode. (Refer to *ASCII Operating Commands*.) Most PC applications require RS-232. A remote keyboard can require either RS-232 or RS-422, depending on the communications facility. To find out the required interface, check your PC serial port information or refer to your keyboard manual. Set DIP switch SW5 (COM 2) for RS-232 or RS-422, according to your system requirements. The SCU is configured at the factory for RS-422.
  - b. DIP switches SW1, SW2, SW3 and SW4 are to remain in the factory default position (OFF).
  - c. DIP switch SW6 (COM1) is to remain in factory default position (RS-422).

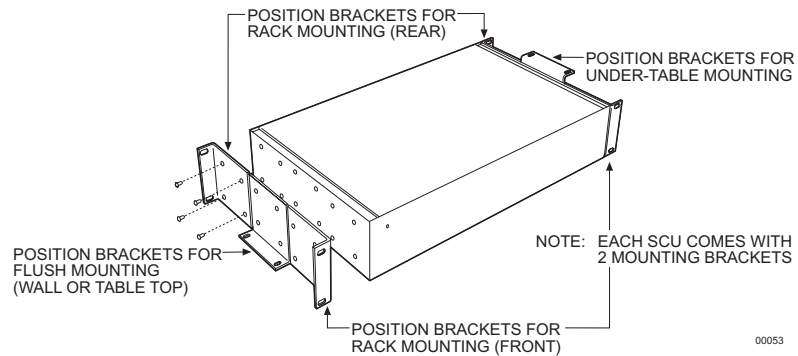


**Figure 6. DIP Switch Locations**

4. Replace cover.

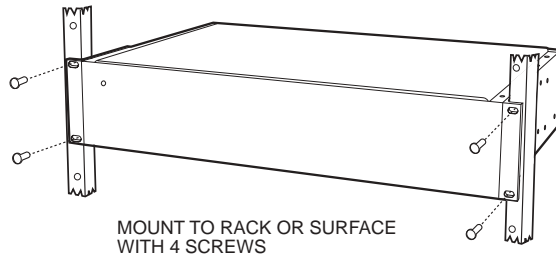
## 2 MOUNT UNIT

1. Select a suitable location for the SCU. It must be within 6 feet (1.8 m) of a suitable electrical outlet. Do not connect the power yet.
2. Refer to Figure 7. Position mounting ears on the sides of the SCU for the appropriate mounting. If the ears are not required, leave them off.



**Figure 7. Installing Mounting Ears**

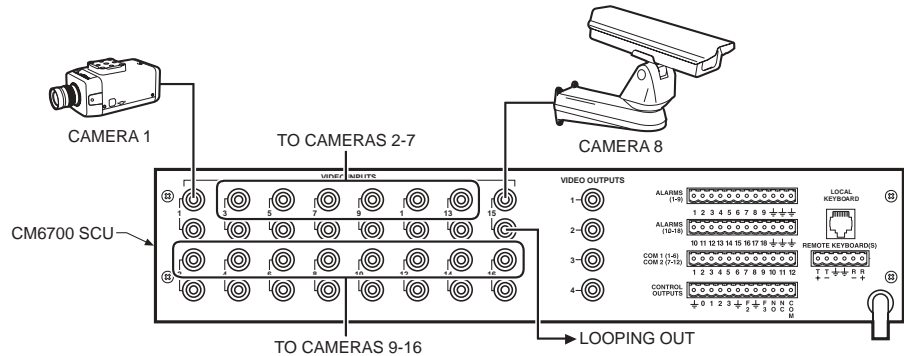
3. Refer to Figure 8. Use suitable hardware to mount the SCU in an equipment bay or against a flat surface, according to your installation requirements.



**Figure 8.** Mounting the Matrix Switcher

### 3 CONNECT VIDEO SOURCES

Refer to Figure 9. Connect video cables at the appropriate BNC receptacles on the back of the SCU.

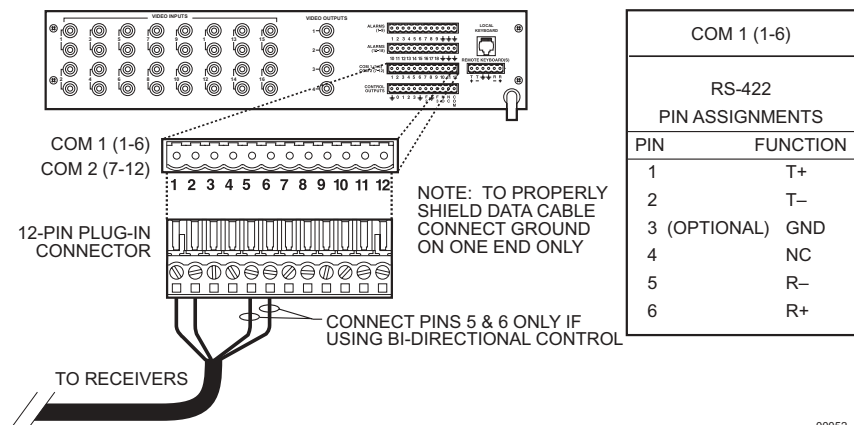


**Figure 9.** Connecting Video Sources

### 4 CONNECT CONTROL LINES

*NOTE: If D or P protocol receivers are used, they must all be the same protocol. D and P protocol receivers cannot be mixed on the SCU's communication port. Coaxitron control may be used for some of your sources when either D or P protocol receivers are used.*

1. Connect camera control lines to receivers. If your video sources are all controlled by Coaxitron, skip this section and go to step 5. If any of your video sources are using D or P protocol via RS-422 communications circuits, they will connect at COM 1 on the back of the SCU, as outlined below.
2. Refer to Figure 10. Connect control lines to COM 1 at the connector on the back of the SCU.



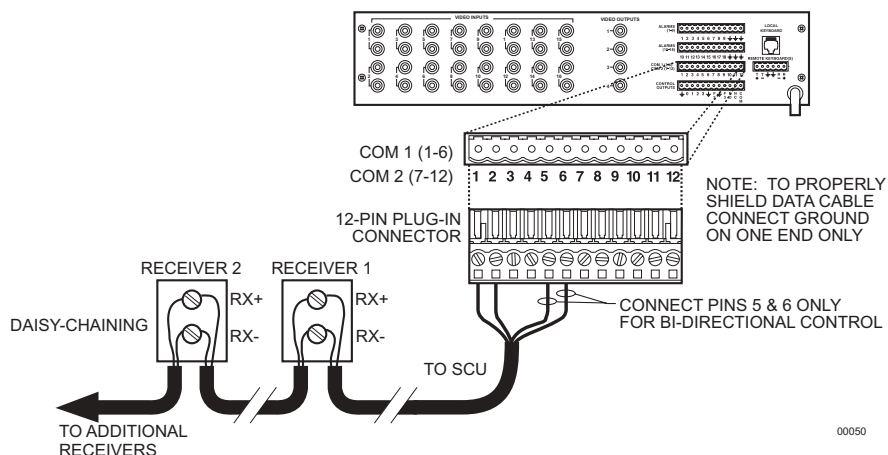
**Figure 10.** COM 1 Connections on the SCU

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*NOTE: Unless you have receivers that are equipped for bi-directional control, you will only need to run two wires (TX+ and TX-) to each receiver.*

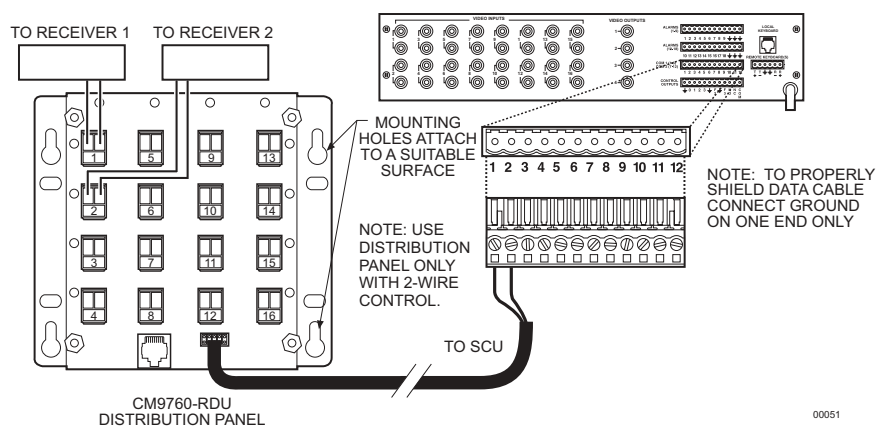
### 3. Connect wiring to all receivers.

- a. Daisy-chaining (going from one receiver to another) is recommended (refer to Figure 11) but not always possible.



**Figure 11. Daisy-Chaining Receivers**

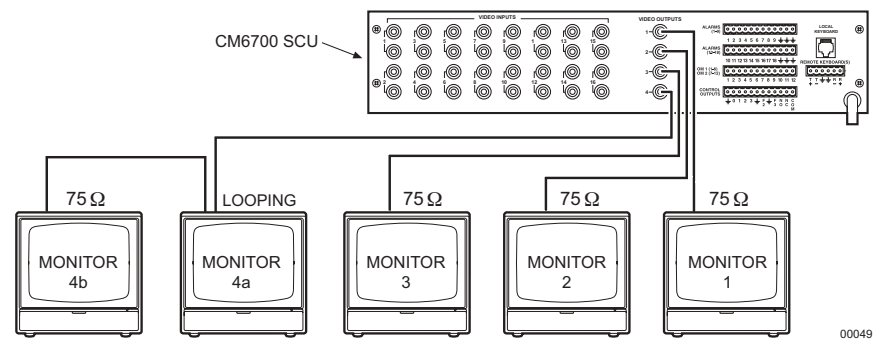
- b. A star configuration (going to each receiver from a central connecting point) is sometimes more practical. Your installation will be easier to maintain and troubleshoot if you make all connections at a distribution block made of barrier terminals or at a Pelco CM9760-RDU distribution panel (refer to Figure 12). The total length of all control lines combined should not exceed 4,000 feet (1,219 m).



**Figure 12. Making Receiver Connections at a Distribution Block (CM9760-RDU)**

## 5 CONNECT MONITORS

1. Your SCU will support either two or four monitors. Models CM6700-MXB4 and CM6700-MXB4-X support four monitors (Monitors 1-4). Models CM6700-MXB2 and CM6700-MXB2-X support two monitors (Monitor 1 and 2). A CM6700-VMC2 expansion card can be added to the CM6700-MXB2 or a CM6700-VMC2-X to the CM6700-MXB2-X to increase the support to four monitors.
2. Install monitors according to the instructions provided with them.
3. Refer to Figure 13. Connect the monitor cables at the appropriate BNC receptacle on the back of the SCU.
4. Be sure to properly terminate cables at the monitors.

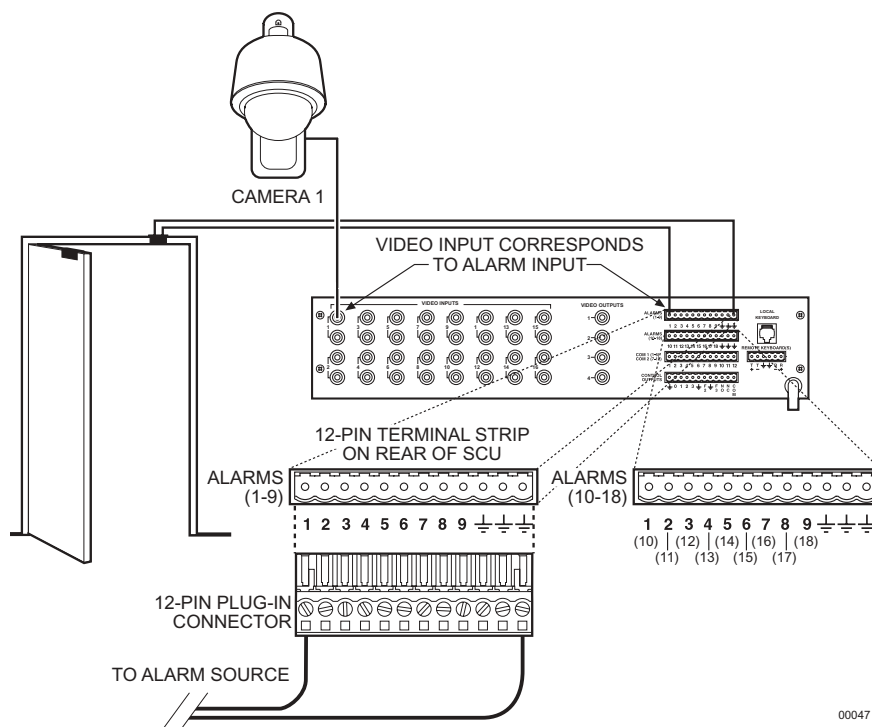


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**Figure 13. Monitor Connections**

## 6 CONNECT ALARMS

1. Refer to Figure 14. Alarm inputs 1-16 correspond to video inputs 1-16. If an open door sensor is connected to alarm input 1, when the sensor is activated the video image from camera 1 will be displayed on one of the four monitors and the camera will move to a preset (determined by programming). Alarm sensors can be either N.O. or N.C. contacts. Connect wires from the sensors to the respective alarm input points on the connectors at the back of the SCU. Each sensor requires one wire to the alarm input terminal and a return wire to one of the ground terminals on the connector.
2. Alarm inputs 17 and 18 correspond to group sequences 1 and 2. During a group sequence four video inputs are sequentially shown on a monitor. Each of the four monitors can be programmed to show the images from four different video sources. An alarm sensed at input 17 or 18 causes the respective group sequence to operate. Connect sensors for these two alarm inputs as described in step 1 above.

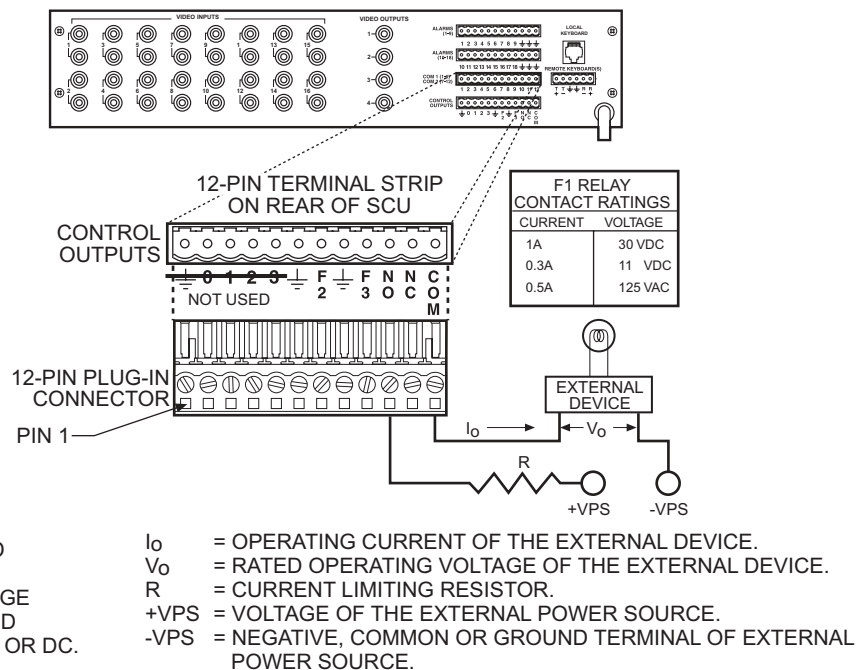


**Figure 14. Connecting Alarms**

## 7 CONNECT AUXILIARIES

The SCU provides three auxiliary (AUX) outputs for controlling VCRs and other devices. These outputs can be activated directly from a keyboard by using the F1, F2, and F3 function keys, or they can be activated by an alarm (determined by programming). Both relay contacts and TTL outputs are used.

- AUX 1 is a dry contact relay output. Refer to Figure 15 for wiring details. Terminal connections are provided for both normally open (N.O.) and normally closed (N.C.) contacts. Do not exceed the voltage and current ratings for the relay contacts. You will need to provide an external power source to operate your device. In most cases you will also need an external current limiting resistor. The formula for calculating the resistor value is given in Figure 15.
- AUX 2 and 3 are TTL open collector outputs. These outputs provide a path to ground to control the low voltage trigger inputs on many devices. They can control higher voltage control inputs via isolation relays. Refer to Figure 16 for wiring details. Do not exceed the voltage and current ratings for the TTL outputs. An external pull-up resistor is usually necessary. The formula for calculating the resistor value is given in Figure 16.



### FORMULAS FOR R VALUES

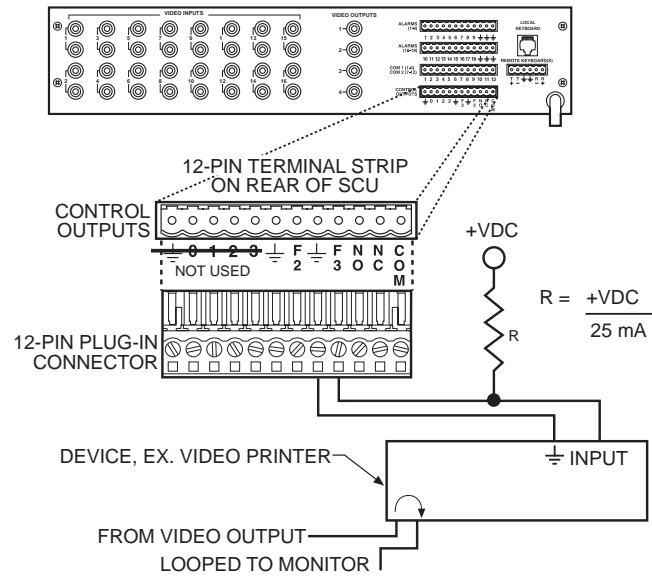
$$R \text{ (OHMS)} = \frac{VPS - V_O}{I_O}$$

$$P \text{ (WATTS)} = (I_O)^2 \times R$$

\*WIRING FOR NORMALLY OPEN TYPE CONTACTS SHOWN. FOR NORMALLY CLOSED TYPE CONTACT, MOVE WIRE FROM THE NO TERMINAL TO THE NC TERMINAL.

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**Figure 15.** Wiring the AUX 1 (Relay) Output



+VDC = VOLTAGE OF THE EXTERNAL POWER SOURCE

**NOTE:** +VDC SHOULD BE 5V OR GREATER, BUT NOT EXCEED 32 V OR THE MAXIMUM RATED OUTPUT VOLTAGE FOR THE DEVICE INPUT. +VDC CAN ONLY BE DC.

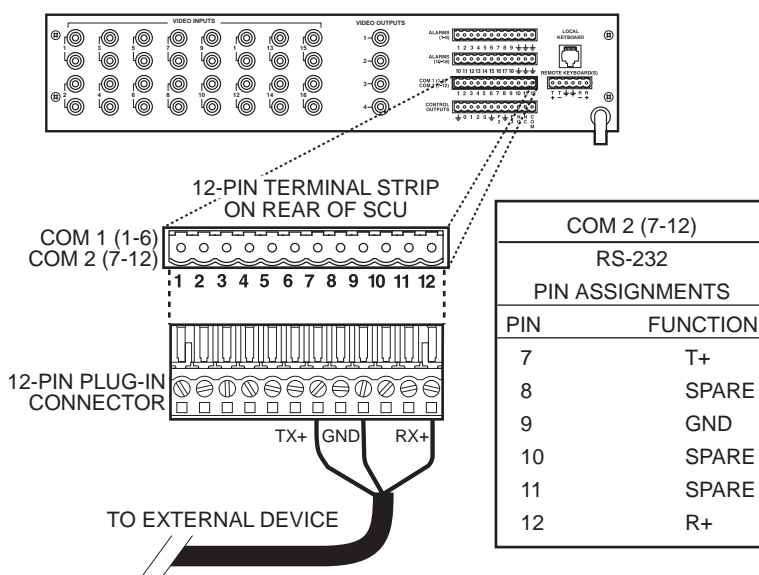
**Figure 16.** Wiring the AUX 2 and AUX 3 (TTL) Outputs

## 8 CONNECT COM 2 PORT

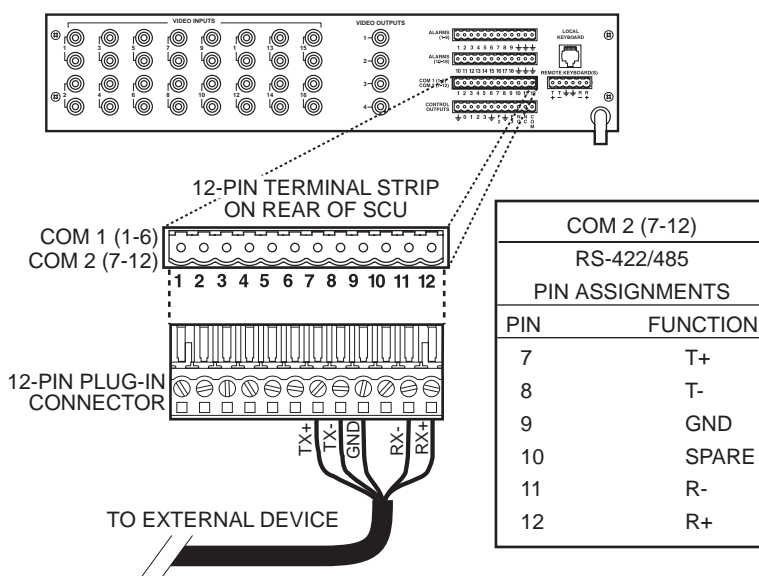
**NOTE:** If you are using a PC at COM 2, refer to the Troubleshooting section.

You will need to use the COM 2 port if your system includes an ASCII control device, such as a personal computer or a keyboard that is connected via dial-up lines or fiber optic network. The port interface at COM 2 can be either RS-232 or RS-422/485. The DIP switches should have been set (refer to Figure 6).

- If you require an RS-232 port interface, connect wires from the RS-232 device to the COM 2 terminals at the back of the SCU. Refer to Figure 17.
- If you require an RS-422/485 port interface, connect wires from the RS-422 device to the COM 2 terminals at the back of the SCU. Refer to Figure 18.



**Figure 17.** Connecting an RS-232 Interface



**Figure 18.** Connecting an RS-422/485 Interface



## 9 CONNECT KEYBOARDS

**NOTE:** Keyboard model KBD300V(-X) cannot be connected to the local keyboard port.

**NOTE:** A KBDKIT or KBDKIT-X is required to connect remote keyboards. The KBDKIT consists of two RJ-45 wall blocks and one 120 VAC to 12 VAC transformer. The KBDKIT-X is for 230 VAC. Use one wall block for each keyboard.

Pelco offers four keyboard models for use with the CM6700 Matrix Switcher. Complete installation instructions are provided with each keyboard. The most common connections are for local and remote keyboards. The procedures for installing local and remote keyboards are repeated here. Refer to the keyboard manual for the less common ASCII connection (KBD200 only).

### a. Models KBD100, KBD200 and KBD300. Refer to Figure 19.

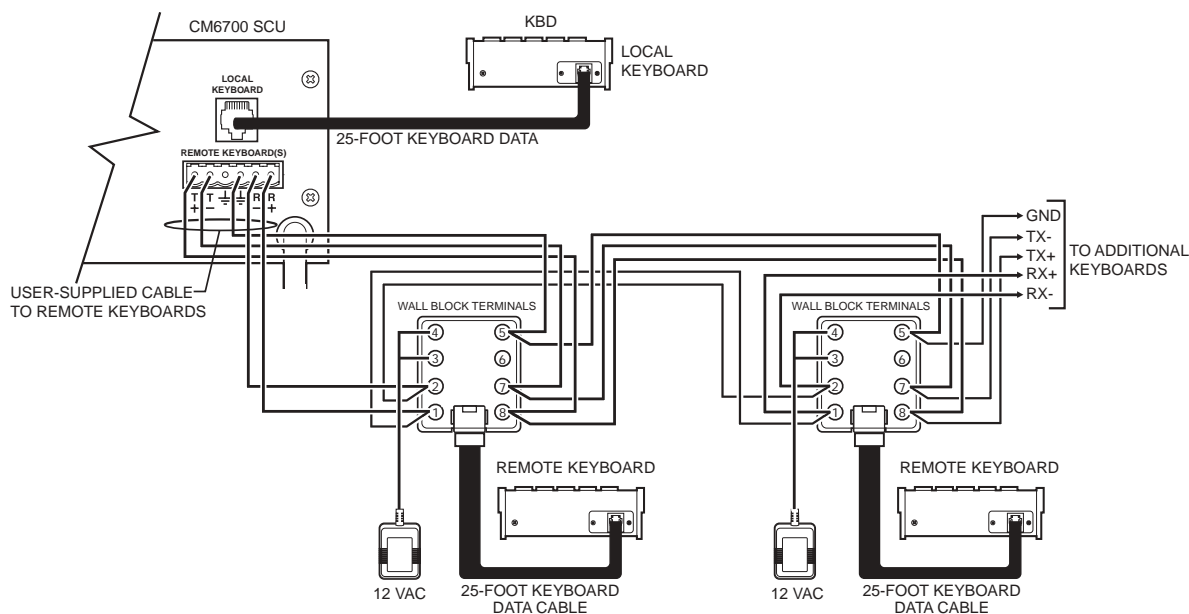
1. Local keyboard. Using the data cable that is supplied with the keyboard, plug one end into the RJ-45 connector on the rear of the keyboard and plug the other end into the LOCAL KEYBOARD port on the SCU. Set the keyboard DIP switch for the desired address for the local keyboard (refer to Table A).

If you are not installing any other keyboards, go to the *Programming* section. To install remote keyboards, complete steps 2-10. To install KBD300V keyboards, go to step b.

2. Select a suitable location for each keyboard and wall block. Wall blocks must be within 6 feet (1.8 m) of a suitable electrical outlet. Do not mount the wall block yet.
3. Run wall block interconnect cable (user-supplied) from the SCU to the closest keyboard location, and then to the next nearest location, and the next, etc.

Communication to the keyboards is RS-485. Maximum total cable distance for RS-485 communication over 24-gauge wire is 4,000 feet (1,219 m). Pelco recommends using shielded twisted pairs cable that meets or exceeds the basic requirements for EIA RS-485 applications.

4. Remove the wall block cover and make cable connections at each wall block.
5. At each wall block, wire the transformer to pins 3 and 4. Polarity is unimportant.
6. Replace the cover on the wall block. Secure the wall block to a suitable surface. A double-sided sticky pad is provided to mount the wall block.
7. Set the address switches for each keyboard according to Table A.



**Figure 19.** Installing Local and Remote Keyboards

*NOTE: You must re-initialize whenever power is cycled.*

*NOTE: Keyboard model KBD300V(-X) cannot be connected to the local keyboard port.*

8. Plug in all keyboard data cables.
9. Plug the KBDKIT or KBDKIT-X transformers into a suitable outlet and apply power to the SCU.
10. To initialize a keyboard, wait five seconds after power-up, enter the number for the monitor you are viewing (1-4) and press MON.

b. Models KBD300V or KBD300V-X. Refer to Figure 20.

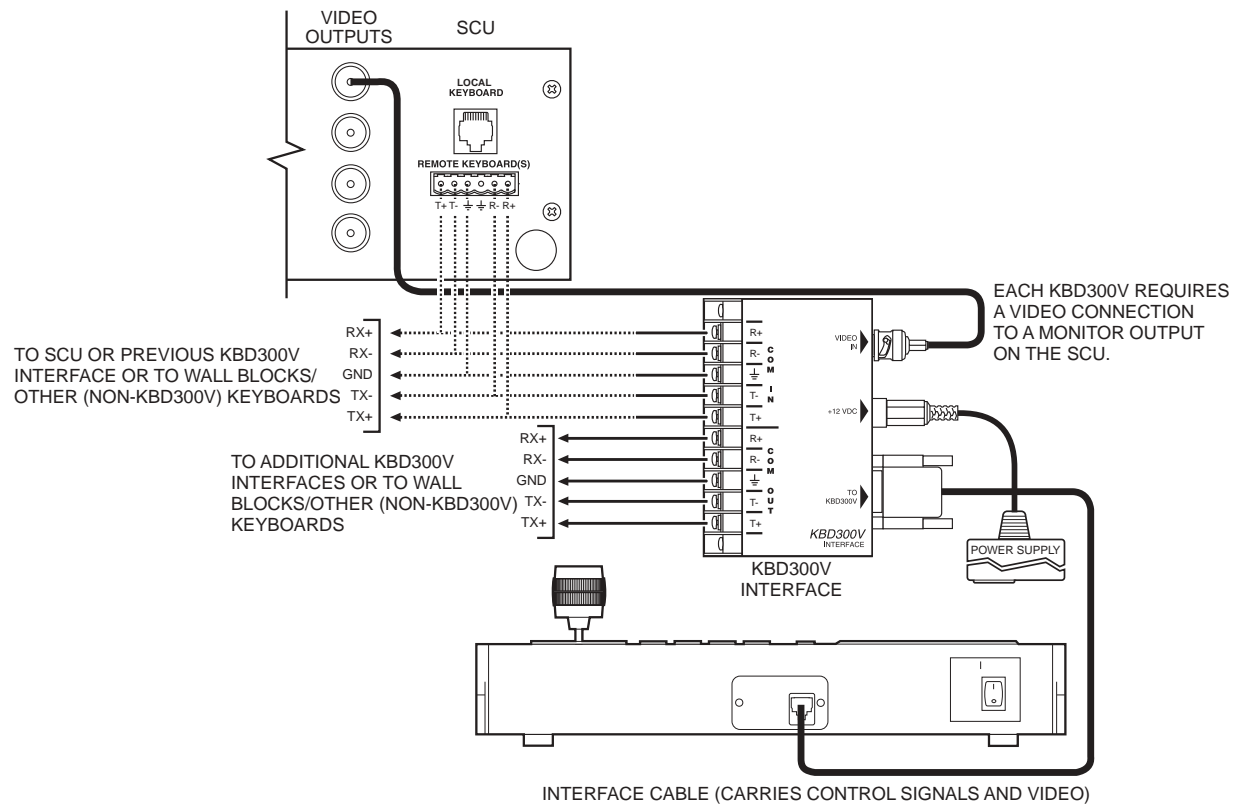
A KBD300V(-X) interface is used to connect the KBD300V(-X) keyboard to the Remote Keyboard port on the back of the SCU or to another KBD300V(-X) interface in a daisy-chain hookup. It can also connect to a wall block on either its input side or its output side. You can have as many KBD300V(-X) keyboards as you have monitor outputs on your SCU.

1. Select a suitable location for the keyboard and interface. The interface must be within 6 feet (1.8 m) of a suitable electrical outlet and within 6 feet (1.8 m) of the keyboard. Attach the interface to the wall or other surface with the screws that are provided. Remove the cover if necessary, and replace when finished.
2. Connect a five-conductor (or larger) cable (user-supplied) from the SCU (or from a wall block or another interface) to the interface. Connect wires at the COM IN terminals. If additional keyboards follow the KBD300V(-X), connect a cable from the interface output terminals to the next wall block or interface.
3. Connect a video cable from a monitor output on the SCU to the VIDEO IN jack on the interface. Connect additional monitor outputs to any additional KBD300V(-X) keyboards you are installing.
4. Set the keyboard address switches for each keyboard according to Table A.
5. Connect the keyboard data cable between the interface and the keyboard.
6. Connect the power supply to the interface and plug the transformer end into a suitable outlet.
7. Turn on the power switch on the back of the keyboard and apply power to the SCU (if not already powered).
8. To initialize the keyboard, wait five seconds after power-up, enter the keyboard number, and press MON.

**Table A. Keyboard Addresses**

Keyboard	Address	Switch Settings			
		1	2	3	4
1	0	OFF	OFF	OFF	OFF
2	1	ON	OFF	OFF	OFF
3	2	OFF	ON	OFF	OFF
4	3	ON	ON	OFF	OFF
5	4	OFF	OFF	ON	OFF
6	5	ON	OFF	ON	OFF
7	6	OFF	ON	ON	OFF
8	7	ON	ON	ON	OFF
9	8	OFF	OFF	OFF	ON
10	9	ON	OFF	OFF	ON
11	10	OFF	ON	OFF	ON
12	11	ON	ON	OFF	ON
13	12	OFF	OFF	ON	ON
14	13	ON	OFF	ON	ON
15	14	OFF	ON	ON	ON
16	15	ON	ON	ON	ON

*NOTE: Switch positions 5 through 8 appear on the KBD200, KBD300 and KBD300V. Set 5, 7, and 8 OFF. Switch 6 enables (ON) or disables (OFF) turbo pan.*



**Figure 20.** Installing the KBD300V(-X) Keyboard

# PROGRAMMING


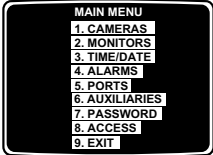
Programming allows you to assign titles for cameras, establish monitor group sequences, enable/disable alarms, establish access restrictions, set alarm options, set time and date, change password, and set auxiliary options.

Refer to Figure 21. You program the CM6700 with the keyboard and a monitor. During programming, a menu appears on the monitor screen. Use the sequence and macro keys (KBD100), pan/tilt positioning keys (KBD200), or the joystick (KBD300, KBD300V, and KBD300V-X) on your keyboard to navigate the menu. The F1 and F2 keys select (toggle) options and scroll through lists. Use the numerical keypad to enter numerical values.

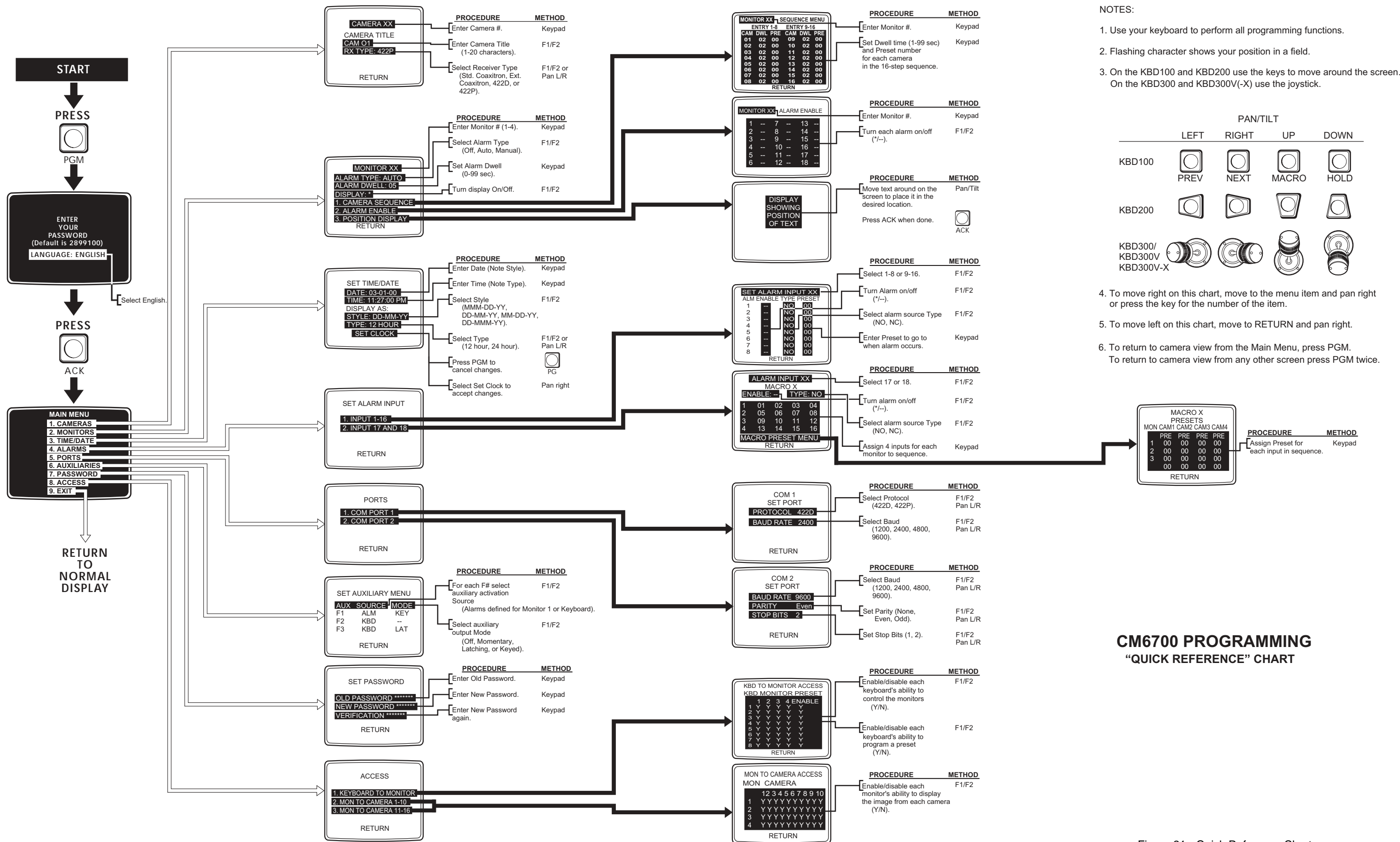
Programming the CM6700 SCU is described in Table B. Table B is arranged in the general order in which you should program your SCU, but also allows you to go into the programming mode at any time to change a particular item. If you do not wish to perform a step (for example, change password), just go to the next step.

If you are familiar with programming the SCU, you can use Figure 21 by itself to quickly locate any program item. Permission is granted to copy Figure 21 if you wish to post it in a convenient location for quick reference.

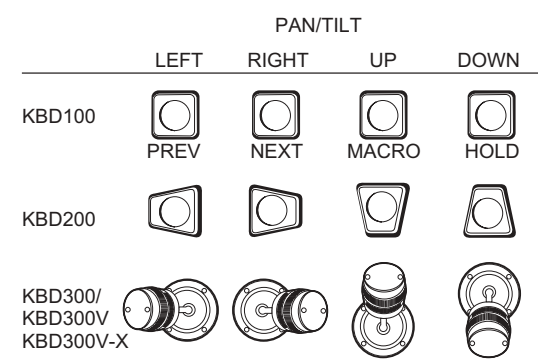
**Table B.** Programming the CM6700 Switching Control Unit

Step 1		
Function	Action	Result
Enter Main Menu	a. Press the PGM key.	The Password screen appears.
		 <p>Select English.</p>
	b. Make sure the language selection is English.	
	c. Use the number keypad to enter the password – default is 2899100 (Pelco's toll-free phone number).	Asterisks (*) appear on screen for each number you type.
	d. Press ACK.	The Main Menu appears.
	e. Go to another step or press 9 to exit.	

(Continued on page 22)



- NOTES:
1. Use your keyboard to perform all programming functions.
  2. Flashing character shows your position in a field.
  3. On the KBD100 and KBD200 use the keys to move around the screen. On the KBD300 and KBD300V(-X) use the joystick.
  4. To move right on this chart, move to the menu item and pan right or press the key for the number of the item.
  5. To move left on this chart, move to RETURN and pan right.
  6. To return to camera view from the Main Menu, press PGM. To return to camera view from any other screen press PGM twice.

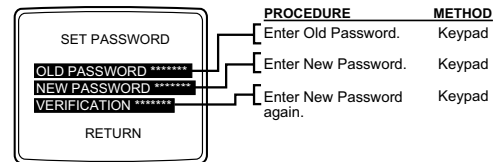


## CM6700 PROGRAMMING "QUICK REFERENCE" CHART

Figure 21. Quick Reference Chart

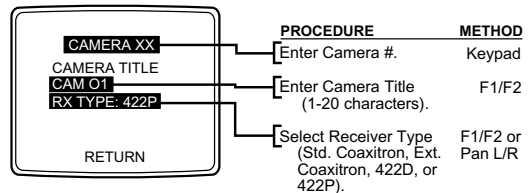
**Table B.** Programming the CM6700 Switching Control Unit (Continued)

Step 2		
Function	Action	Result
Change Password  <i>NOTE: If you change the password and then forget the new one, you will have to reset the system to the factory defaults. All system programming will be lost.</i>  See the <i>Troubleshooting</i> section for the system reset procedure.	a. Enter the Main Menu.  b. Press 7.  c. Type the existing password and press ACK.  d. Type the new password and press ACK.  e. Type the new password again and press ACK.  f. Go to another step or press 9 to exit.	The Main Menu appears.  The Set Password screen appears. The first asterisk (*) in the OLD PASSWORD field flashes.  The first asterisk (*) in the NEW PASSWORD field flashes. If you make a mistake, you are prompted to try again.  The first asterisk (*) in the VERIFICATION field flashes.  The screen says "NEW PASSWORD ACCEPTED." If you make a mistake, you will be notified that the new password does not match the verification password. After the new password is accepted, the Main Menu appears.



**Table B.** Programming the CM6700 Switching Control Unit (Continued)

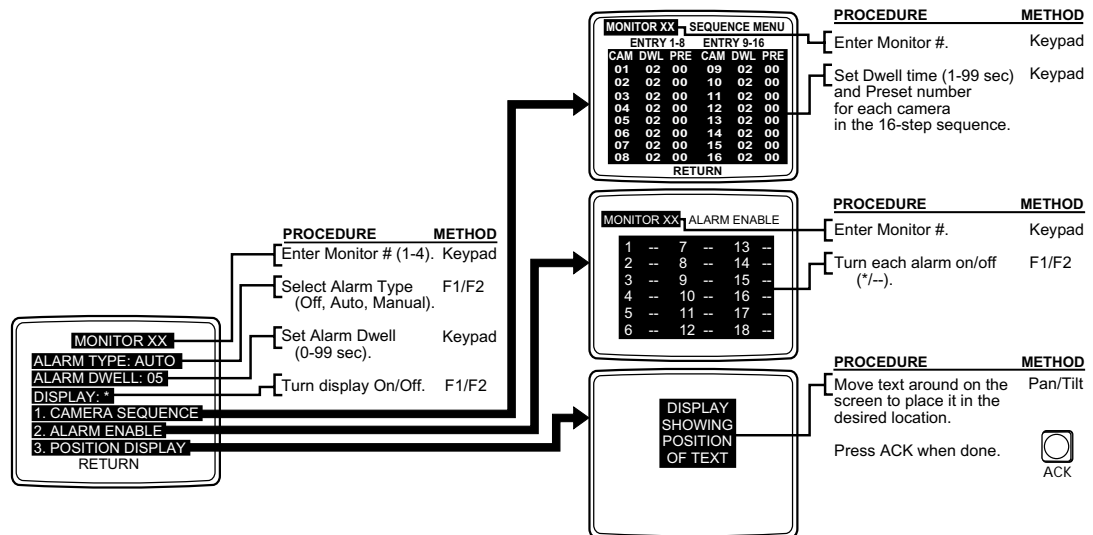
Step 3		
Function	Action	Result
<p>Program Cameras</p> <p><u>Assign Camera Titles:</u> Up to 20 alpha or numeric characters can be assigned to help identify on-screen video. This will appear with camera number, time and date on the monitor.</p> <p><u>Select Receiver Protocol:</u> Type of receiver communication you will use to control a camera's pan and tilt and lens (if applicable). Choose from Standard Coaxitron, Extended Coaxitron, Pelco D protocol or Pelco P protocol.</p> <p><i>NOTE: P and D protocols cannot be mixed in the same system.</i></p>	a. Enter the Main Menu.	The Main Menu appears.
	b. Press 1.	The Camera NN screen appears. NN is the camera number. The camera number flashes.
	c. Enter the desired camera number (01-16) or pan left/right to show the desired camera number.	The selected number appears on screen.
	d. Move down to highlight the CAMERA TITLE (CAM NN) field (the line below CAMERA TITLE).	The first position in the CAMERA TITLE field flashes.
	e. Use the F1 and F2 keys to scroll through the available characters. There are 26 upper case letters, 26 lower case letters and the numbers 0-9.	The first position shows the character you are on.
	f. When you find the character you want for the first position, pan right to the next position.	The second position in the CAMERA TITLE field flashes.
	g. Use F1 and F2 to find the second character.	The second position shows the character.
	h. Pan right.	The third position in the CAMERA TITLE field flashes.
	i. Continue selecting characters until the title field is completed (up to 20 characters).	The CAMERA TITLE field shows the entire title.
	j. To change any position's entry, pan left until the character flashes and use F1 and F2 to change it.	The new character flashes.
	k. When finished, move down to the RX TYPE field.	The current protocol setting for the selected camera flashes.
	l. Use F1 and F2 to find the desired protocol.	The selected protocol appears.
	m. To program another camera, go to step n. When you have finished programming cameras, go to step o.	
	n. Move up to the CAMERA NN field and go back to step c to program another camera. When you have finished programming cameras, go to step o.	
	o. Move down to RETURN and pan right to go back to the Main Menu.	The Main Menu appears.
	p. Go to another step or press 9 to exit.	



**Table B.** Programming the CM6700 Switching Control Unit (Continued)

Step 4	Function	Action	Result
	Program Monitors	a. Enter the Main Menu.	The Main Menu appears.
		b. Press 2.	The Monitor NN screen appears. NN is the monitor number. The monitor number flashes.
	<u>Alarm Type:</u> Manual – must press ACK to reset. Auto – alarm resets 10 seconds after alarm normalizes. Off – no alarms shown.	c. Enter the desired monitor number (01-04) or pan left/right to show the desired monitor number.	The selected number appears on screen.
		d. Move down to highlight the ALARM TYPE: field.	The current alarm type for the selected monitor appears on screen.
		e. Use the F1 and F2 keys to find the desired alarm type.	The selected alarm type appears.
	<u>Alarm Dwell:</u> 1 to 99 seconds – time between display of multiple alarm screens.	f. Move down to highlight the ALARM DWELL field.	The current alarm dwell for the selected monitor appears on screen.
		g. Use the keypad to enter the desired dwell time (1 to 99 seconds).	The entered dwell time appears.
	<u>Character Display:</u> On or off.	h. Move down to highlight the DISPLAY field.	The current status of character display appears.
		i. Use F1 and F2 to toggle the character display on or off.	Asterisk (*) = on, dashes (--) = off.
	<u>Program Camera Sequences:</u> Each monitor can have one 16-step sequence. Set dwell time and preset number for each camera.	j. Move down to the 1. CAMERA SEQUENCE field.	The 1. In the 1. CAMERA SEQUENCE field flashes.
		k. Pan right.	The Monitor NN Sequence Menu appears.
		l. Use the position keys or joystick to move around the menu. Set Camera Number (1-16), Dwell Time (1-99 sec.) and Preset number for each camera in the sequence. Enter zeroes to skip a camera.	The entered values appear.
		m. Move down to RETURN.	The R in RETURN flashes.
		n. Pan right.	The Monitor NN screen appears.

(Continued on next page)





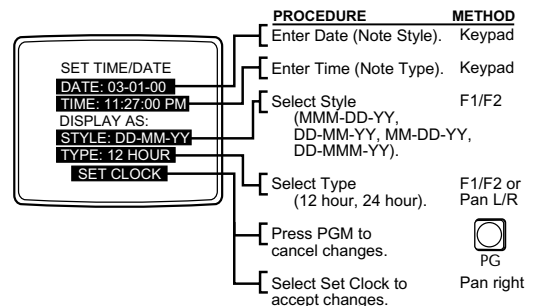
**Table B.** Programming the CM6700 Switching Control Unit (Continued)

Step 4 (Continued)		
Function	Action	Result
	o. Move down to the 2. ALARM ENABLE field.	The 2. in the 2. ALARM ENABLE field flashes.
	p. Pan right.	The Monitor NN Alarm Enable screen appears.
	q. Turn each alarm on or off.	Asterisk (*) = on, dashes (--) = off.
	r. Move down to RETURN.	The R in RETURN flashes.
	s. Pan right.	The Monitor NN screen appears.
	t. Move down to the 3. POSITION DISPLAY field.	The 3. in the 3. POSITION DISPLAY field flashes.
	u. Pan right.	The real-time camera display appears with superimposed text.
	v. Use the position keys or joystick to move the text to the desired position on the screen.	The text moves one line or character position at a time.
	w. Press the ACK button.	The Monitor NN screen appears.
	x. To program another monitor, go to step c. When you have finished programming monitors, go to step y.	
	y. Move down to RETURN and pan right to go back to the Main Menu.	The Main Menu appears.
	z. Go to another step or press 9 to exit.	

**Table B.** Programming the CM6700 Switching Control Unit (Continued)

Step 5		
Function	Action	Result
Program Time and Date	a. Enter the Main Menu.	The Main Menu appears.
<p>Time and date is kept current in battery-backed RAM. Corrections can be made when necessary. The time and date displayed is the time in memory when the TIME/DATE field is selected. The new time will be set when you select the SET CLOCK field and pan right.</p> <p><i>NOTE: To abort time and date programming without changing the settings already in memory, press PGM.</i></p>	b. Press 3. <i>Take note of the contents of the STYLE and TYPE fields for the following procedure. The Style must be MMM-DD-YY and the Type must be 12 hour. If they are not, move down to the field and use the F1 and F2 keys to change them, then move back up to the first field.</i>	The Set Time/Date screen appears. The MONTH field flashes.
	c. Use F1 and F2 to find the desired month.	The selected month appears.
	d. Pan right.	The DAY field flashes.
	e. Use the keypad to select the desired day.	The selected day appears.
	f. Pan right.	The YEAR field flashes.
	g. Use the keypad to select the desired year.	The selected year appears.
	h. To change any position's entry, pan left until the character flashes and use the keypad or F1 and F2 to change it.	
	i. Pan right and move down to TIME field.	The HOUR field flashes.
	j. Use the keypad to select the desired hour.	The selected hour appears.
	k. Pan right.	The MINUTE field flashes.
	l. Use the keypad to select the desired minute.	The selected minute appears.
	m. Pan right.	The SECOND field flashes.
	n. Use the keypad to select the desired second.	The selected second appears.
	o. Pan right.	The AM/PM designator field flashes.
	p. Use F1 and F2 to select the correct designator.	The selected designator flashes.
	q. Move down to the STYLE field.	The STYLE field flashes.

(Continued on next page)



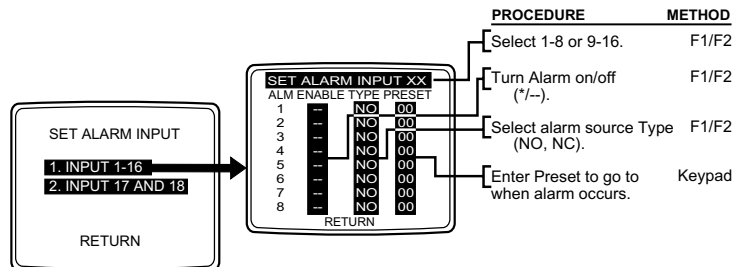
**Table B.** Programming the CM6700 Switching Control Unit (Continued)

Step 5 (Continued)		
Function	Action	Result
	r. Use F1 and F2 to select the desired style (DD-MM-YY, MM-DD-YY, DD-MMM-YY and MMM-DD-YY).	The selected style flashes.
	s. Move down to the TYPE field.	The TYPE field flashes.
	t. Use F1 and F2 to select the desired type (12 HOUR or 24 HOUR).	The selected type flashes.
	u. Move down to the SET CLOCK field.	The SET CLOCK field flashes.
	v. Check all your entries. If any fields are incorrect, move to them, enter the corrections, and move back to the SET CLOCK field.	The SET CLOCK field flashes.
	w. When you are ready to set the time, mark time and pan right when the new time in the TIME field arrives.	The clock begins running from the new time. The Main Menu appears.
	x. Go to another step or press 9 to exit.	

**Table B.** Programming the CM6700 Switching Control Unit (Continued)

Step 6		
Function	Action	Result
Program Alarms 1-16	a. Enter the Main Menu.	The Main Menu appears.
	b. Press 4.	The Set Alarm Input screen appears. Alarms are programmed in two groups. The Group 1 (INPUT 1-16) number flashes.
	c. Pan right.	The Set Alarm Input 1-8 screen appears. 1-8 flashes.
	d. Move down to the ALM ENABLE 1 field.	The entry in the ENABLE field flashes.
	e. Use the F1 and F2 keys to toggle the Alarm Enable field (* = ON, -- = OFF). If you selected OFF go to step k; otherwise, go to the next step.	The selected value flashes.
	f. Pan right.	The entry in the TYPE field flashes.
	g. Use the F1 and F2 keys to toggle the Alarm TYPE field (NO = normally open contacts, NC = normally closed contacts).	The selected value flashes.
	h. Pan right.	The entry in the PRESET field flashes.
	i. Use the keypad to select the desired preset (that the camera will assume when an alarm occurs) for this alarm number.	The selected value flashes.
	j. Pan right.	The Alarm 1 ENABLE field flashes.
	k. To program another alarm, go to step l. When you have finished programming the alarms in this group, go to step m.	
	l. Move down to the next ALM ENABLE field. Repeat steps e through k for the next alarm.	The entry in the ENABLE field flashes.
	m. To program group 2 (INPUT 9-16), go to step n. When you have finished programming the alarms in group 2, go to step r.	
	n. Move up to the Set Alarm Input 1-8 screen.	The Set Alarm Input 1-8 screen appears. 1-8 flashes.

(Continued on next page)



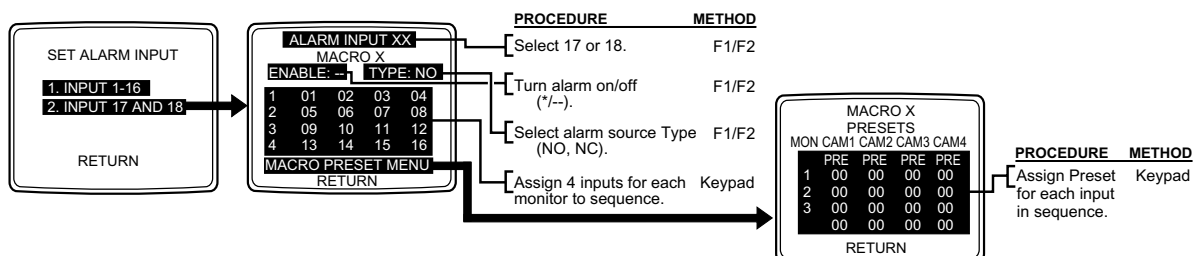
**Table B.** Programming the CM6700 Switching Control Unit (Continued)

Step 6 (Continued)		
Function	Action	Result
	o. Pan right.	The Set Alarm Input 9-16 screen appears. 9-16 flashes. The screen changes to show alarms 9-16.
	p. Move down to the ALM ENABLE 9 field.	The entry in the ENABLE field flashes.
	q. Repeat steps e through l for alarms 9 through 16. Then go to step r.	
	r. Move down to RETURN.	The R in RETURN flashes.
	s. Pan right.	The Set Alarm Input screen appears.
	t. To program the macros (inputs 17 and 18), go to step 7c.	
	u. Move down to RETURN and pan right to go back to the Main Menu.	The Main Menu appears.
	v. Go to another step or press 9 to exit.	

**Table B.** Programming the CM6700 Switching Control Unit (Continued)

Step 7		
Function	Action	Result
Program Alarms 17 & 18	a. Enter the Main Menu.	The Main Menu appears.
	b. Press 4.	The Set Alarm Input screen appears. Alarms are programmed in two groups. The Group 1 (INPUT 1-16) number flashes.
	c. Press 2.	The Set Alarm Input 17 screen appears. The number 17 flashes.
	d. Move down to the ENABLE field.	The entry in the ENABLE field flashes.
	e. Use the F1 and F2 keys to toggle the Alarm Enable field (* = ON, -- = OFF). If you selected OFF go to step q. Otherwise go to the next step.	The selected value flashes.
	f. Pan right.	The entry in the TYPE field flashes.
	g. Use the F1 and F2 keys to toggle the Alarm TYPE field (NO = normally open contacts, NC = normally closed contacts).	The selected value flashes.
	h. Move down to the MON1/CAM1 field in the Macro matrix.	The entry in the MON1/CAM1 field flashes.
	i. The entry indicates which camera will be displayed first on monitor number 1 when the Macro alarm is activated. Use the keypad to enter the desired camera number.	The entered value flashes. The selected value flashes.
	j. Use the pan and tilt to move through the matrix and assign the cameras to the sequence for each monitor. If a monitor is not to be included in the sequence, enter all zeros.	Each selected value flashes.
	k. When you have completed all entries, move down to MACRO PRESET MENU.	The M in MACRO PRESET MENU flashes.
	l. Pan right.	The Macro 1 (or 2) Presets screen appears. The entry in the MON1/CAM1 field flashes.
	m. The entry indicates which preset will be assumed by the MON1/CAM1 camera when the Macro alarm is activated. Use the keypad to enter the desired preset number.	The entered value flashes.

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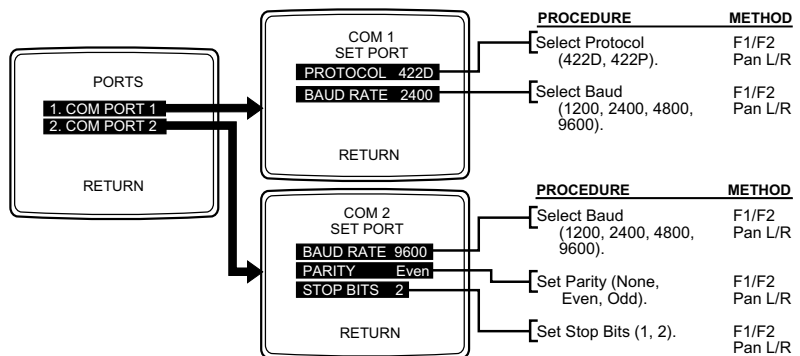


**Table B.** Programming the CM6700 Switching Control Unit (Continued)

Step 7 (Continued)		
Function	Action	Result
	n. Use the sequence and macro keys (KBD100) or pan and tilt to move through the matrix and use the keypad to assign the presets for each MON/CAM entry.	Each entered value flashes.
	o. When you have completed all entries, move down to RETURN.	The R in RETURN flashes.
	p. Pan right.	The Alarm Input 17 (or 18) Macro 1 (or 2) screen appears. The number 17 (or 18) flashes.
	q. To program Alarm Input 18, Macro 2, go to step r. To exit go to step t.	
	r. Pan right.	The Alarm Input 18 Macro 2 screen appears. The number 18 flashes.
	s. Repeat steps d through q for Alarm Input 18, Macro 2.	
	t. Move down to the RETURN field at the bottom of the screen.	The R in RETURN flashes.
	u. Pan right.	The Set Alarm Input screen appears.
	v. Move down to the RETURN field at the bottom of the screen.	The R in RETURN flashes.
	w. Pan right.	The Main Menu appears.
	x. Go to another step or press 9 to exit.	

**Table B.** Programming the CM6700 Switching Control Unit (Continued)

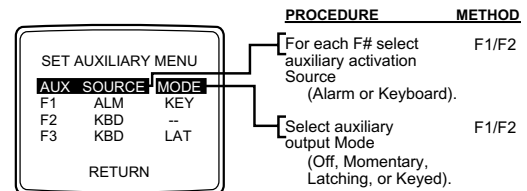
Step 8		
Function	Action	Result
Program Com Ports	a. Enter the Main Menu.	The Main Menu appears.
	b. Press 5.	The Ports screen appears. Port number 1 flashes.
	c. To configure port 1, go to step d. To skip port 1 and configure port 2, go to step j.	
	d. Pan right.	The COM 1 Set Port screen appears. The entry in the PROTOCOL field flashes.
	e. Use the F1 and F2 keys to toggle the protocol field.	The selected value flashes.
	f. Move down to the BAUD RATE field.	The entry in the BAUD RATE field flashes.
	g. Use F1 and F2 to select the desired baud rate.	The selected value flashes.
	h. Move down to the RETURN field.	The R in RETURN flashes.
	i. Pan right.	The Ports screen appears.
	j. Move down to the COM 2 PORT field.	Port number 2 flashes.
	k. Pan right.	The COM 2 Set Port screen appears. The entry in the BAUD RATE field flashes.
	l. Use F1 and F2 to toggle baud rate field.	The selected value flashes.
	m. Move down to the PARITY field.	The entry in the PARITY field flashes.
	n. Use F1 and F2 to select the parity.	The selected value flashes.
	o. Move down to the STOP BITS field.	The entry in the STOP BITS field flashes.
	p. Use F1 and F2 to select the stop bits.	The selected value flashes.
	q. Move down to the RETURN field.	The R in RETURN flashes.
	r. Pan right.	The Ports screen appears.
	s. Move down to the RETURN field.	The R in RETURN flashes.
	t. Pan right.	The Main Menu appears.
	u. Go to another step or press 9 to exit.	





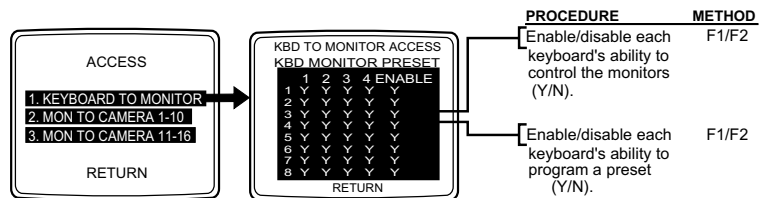
**Table B.** Programming the CM6700 Switching Control Unit (Continued)

Step 9		
Function	Action	Result
Program Auxiliary Outputs  AUX F1, F2, and F3 can be operated by an alarm* (ALM) or from the keyboard (KBD).  Mode can be off (--), on or off latching (LAT), momentary for 300 microseconds (MOM), or momentary for the time the key is held down (KEY).  *Alarms as defined for Monitor 1.	a. Enter the Main Menu.	The Main Menu appears.
	b. Press 6.	The Set Auxiliary Menu screen appears. The entry in the AUX F1 SOURCE field flashes.
	c. Use the F1 and F2 keys to select the source.	The selected value flashes.
	d. Pan right.	The entry in the MODE field flashes.
	e. Use F1 and F2 to select the mode.	The selected value flashes.
	f. Pan left and move down to the AUX F2 SOURCE field.	The entry in the AUX F2 SOURCE field flashes.
	g. Use F1 and F2 to select the source.	The selected value flashes.
	h. Pan right.	The entry in the MODE field flashes.
	i. Use F1 and F2 to select the mode.	The selected value flashes.
	j. Pan left and move down to the AUX F3 SOURCE field.	The entry in the AUX F3 SOURCE field flashes.
	k. Use F1 and F2 to select the source.	The selected value flashes.
	l. Pan right.	The entry in the MODE field flashes.
	m. Use F1 and F2 to select the mode.	The selected value flashes.
	n. Move down to the RETURN field.	The R in the RETURN field flashes.
	o. Pan right.	The Main Menu appears.
	p. Go to another step or press 9 to exit.	



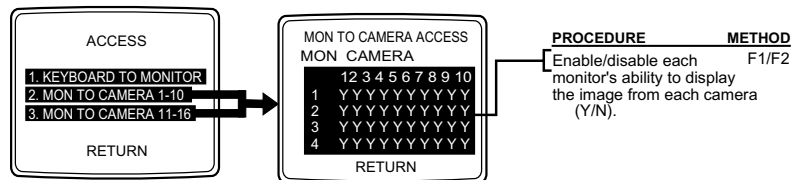
**Table B.** Programming the CM6700 Switching Control Unit (Continued)

Step 10		
Function	Action	Result
<p>Program Keyboard Access</p> <p>Access determines which keyboards have access to which monitors and if presets can be programmed.</p>	a. Enter the Main Menu.	The Main Menu appears.
	b. Press 8.	The Access screen appears. Access is programmed in three groups. The group 1 (Keyboard to Monitor) number flashes.
	c. Pan right.	The Keyboard to Monitor Access matrix screen appears. The entry for KBD 1/MONITOR 1 flashes.
	d. Use the F1 and F2 keys to toggle the keyboard 1/monitor 1 access entry.	The selected value flashes.
	e. Use the sequence and macro keys (KBD100) or pan and tilt to move through the matrix. Use F1 and F2 to assign the desired value for each keyboard/monitor combination and preset enable.	The selected values flash.
	f. When you have completed all entries, move down to RETURN.	The R in the RETURN field flashes.
	g. Pan right.	The Access screen appears.
	h. To continue with Access programming, go to step c. Otherwise continue with the next step.	
	i. Move down to the RETURN field.	The R in RETURN flashes.
	j. Pan right.	The Main Menu appears.
	k. Go to another step or press 9 to exit.	



**Table B.** Programming the CM6700 Switching Control Unit (Continued)

Step 11		
Function	Action	Result
Program Camera Access  Access determines which camera images are shown on which monitors.	a. Enter the Main Menu.	The Main Menu appears.
	b. Press 8.	The Access screen appears. Access is programmed in three groups. The group 1 (Keyboard to Monitor) number flashes.
	c. Move down to the group 2 (MON TO CAMERA 1-10) field.	The group 2 number flashes.
	d. Pan right.	The Monitor to Camera Access matrix screen appears. The entry for MON 1/CAMERA 1 flashes.
	e. Use the F1 and F2 keys to toggle the monitor 1/ camera 1 access entry.	The selected value flashes.
	f. Use the sequence and macro keys (KBD100) or pan and tilt to move through the matrix. Use F1 and F2 to assign the desired value for each keyboard/ monitor combination.	The selected values flash.
	g. When you have completed all entries, move down to RETURN.	The R in the RETURN field flashes.
	h. Pan right.	The Access screen appears. The group 1 (Keyboard to Monitor) number flashes.
	i. To program group 3 go to step j. Otherwise go to step l.	The group 3 number flashes.
	j. Move down to the group 3 (MON TO CAMERA 11-16) field.	
	k. Repeat steps d through i for group 3.	
	l. Move down to the RETURN field.	The R in RETURN flashes.
	m. Pan right.	The Main Menu appears.
	n. Go to another step or press 9 to exit.	



Step 12		
Function	Action	Result
Program Presets, Patterns, and Zones	Refer to your keyboard manual.	

Programming is completed.

## OPERATION

The CM6700 can be operated with a KBD100, KBD200, KBD300, or KBD300V keyboard. It can also be operated from a PC with ASCII operating commands. Refer to your keyboard manual for keyboard operating instructions.

### ASCII OPERATING COMMANDS

*NOTE: If you are using a PC to send ASCII commands via COM 2, refer to the Troubleshooting section.*

ASCII protocol uses the ASCII character set to transmit and receive commands between a personal computer (PC) and the CM6700. The commands are readable but are not English. They control the pan and tilt mechanisms (fixed and variable speed), camera functions, auxiliary relays, and alarms.

The ASCII protocol communicates in a standard asynchronous, byte-oriented protocol that includes: 1 start bit, 8 data bits, 1 parity bit (odd parity), and 1 stop bit. The communication rate is 9600 baud.

A lowercase "a" ends each command. The ASCII translator acknowledges accepted commands with "AKa" and rejected commands with "NA", the command that was rejected, and a lowercase "a". If it does not recognize the command, it sends "NAa". If the command requires a numeric value, enter the number first. Table C gives examples of ASCII commands. Table D lists all of the commands.

**Table C.** Examples of ASCII Commands

Functional Procedure	Commands	Result
Select a pan and tilt device labeled "CAMERA # 16" and switch it to monitor # 3.	3Ma 16#a	Switch camera # 16 to currently selected monitor 3.
Manipulate the pan and tilt device.	1Ma3#a 5Ma2#a3\ a 47Ra33Da sa	Switch camera 3 to monitor 1. Go to camera 2, preset 3, on monitor 5. Pan right at speed 47, tilt down at speed 33. Stop tilt down only.
Switch a camera.	1Ma3#a	Switch camera 3 to monitor 1.
Call a preset.	5Ma2#a3\ a	Go to camera 2, preset 3, on monitor 5.
Pan and tilt.	47Ra33Da	Pan right at speed 47, tilt down at speed 33.

**Table D. ASCII Commands**

Number ranges are enclosed in brackets—do not enter the brackets. When you control a fixed speed pan and tilt, omit the speed information.

Desired Action	Command	Result
Select monitor	[1-9999]Ma	Calls a monitor to use for camera operation.
Select camera	[1-9999]#a	Selects a camera to display on the current operating monitor. The NEXT key (+) and PREV key (-) commands switch to the next numbered camera in the system.
Next camera	+a	
Previous camera	-a	
Start a sequence forward	[1-99]qa	Starts the selected sequence going forward (incrementing camera numbers) by pressing and holding the NEXT key for two seconds.
Start a sequence backward	[1-99]ba	Starts the selected sequence going backward (decrementing camera numbers) by pressing and holding the PREV key for two seconds.
Hold a sequence	ea	Places the running sequence on hold, freezing the currently selected camera on the monitor. It lets you control the camera or switch. The sequence is still "armed" on the monitor, but inactive.
Pan left	[1-64]La	Moves the currently selected pan and tilt device left or right at the speed indicated. If you omit the speed, some devices move at their default speed and others move at their slowest possible speed. Speed information has no effect on fixed speed devices.
Pan right	[1-64]Ra	
Stop pan left	sa or ~La	
Stop pan right	sa or ~Ra	
Tilt up	[1-63]Ua	Moves the currently selected pan and tilt device up or down at the speed indicated. If you omit the speed, some devices move at their default speed and others move at their slowest possible speed. Speed information has no effect on fixed speed devices.
Tilt down	[1-63]Da	
Stop tilt up	sa or ~Ua	
Stop tilt down	sa or ~Da	
Zoom telephoto	Ta	Makes the currently selected camera zoom in (close up view) or zoom out (wide view).
Zoom wide	Wa	
Stop zoom telephoto	sa or ~Ta	
Stop zoom wide	sa or ~Wa	
Focus near	Na	Changes the good focus range nearer or farther on the currently selected camera.
Focus far	Fa	
Stop focus near	sa or ~Na	
Stop focus far	sa or ~Fa	
Iris open	Oa	Opens (brighter image) or closes (darker image) the iris on the currently selected camera.
Iris close	Ca	
Stop iris open	sa or ~Oa	
Stop iris close	sa or ~Ca	
Stop all PTZ motion	sa	Stops all image motion (stops pan, tilt, zoom, focus, and iris). Does not stop a pattern.
Record pattern	[1-99]/a	On receivers that do patterns, these commands let you record your motions and operations (for a limited time) and then have the system repeat them.
Execute pattern	[1-99]pa	
End pattern	[1-99]na	
Go to preset position	[1-99]\a	Recalls a stored preset position.
Set preset with a label	la[string]!a [1-9999]^a	<p>Sets a preset location with an embedded label, where the ASCII string must be UPPERCASE characters.</p> <p>The [string] is an alphanumeric label up to 20 ASCII characters long and [1-9999] is the associated preset number.</p> <p><i>NOTE: All transmitted characters must be ASCII.</i></p>
Auxiliary on	[1-9999]Aa	Auxiliaries are relay outputs that can be controlled through the protocol. 1-8 operate auxiliaries at the camera (receiver) and 9-11 operate F1-F3 auxiliaries at the CM6700.
Auxiliary off	[1-9999]Ba	

(Continued on next page)

**Table D. ASCII Commands (Continued)**

Desired Action	Command	Result
Start macro	[1-99]Sa	Starts the pre-programmed system group camera sequence (the CM6700 supports only two macros—1 and 2).
Acknowledge alarm	[1-9999]la	Acknowledges an existing alarm.
Send camera title	Ya[string1/.../string16]!a	Sends a series of camera titles (up to 16) to a matrix switching system. The first string always corresponds to camera #1, then each subsequent string (separated by a slash) corresponds to the next higher camera number (ending with camera #16). You can choose to send fewer than 16 camera titles; be sure to end with ]!a. Valid characters in the string are A-Z, a-z, space, and 0-9 in ASCII representation. Strings are limited to 20 characters.
Version	va	Returns the device's version number.
Set date and time	ZaMM/DD/YY/HH:MM:SSa	This mode of operation command sets the date and time. Since the date and time string might be confused with other commands, Za comes first. This puts the receiving device into a mode that can accept the specialized string.  <i>NOTE: All transmitted characters must be ASCII.</i>

## TROUBLESHOOTING

### GAINING INITIAL CONTROL

If you are having problems gaining control of your system for the first time:

1. Confirm that everything is plugged in and has power.
2. Confirm that multiple keyboards have different DIP switch addresses. See the *Switch Settings* section.
3. Confirm that keyboard interconnect cable is wired correctly. See installation step 9 – *Connect Keyboards*.
4. Be sure data cables have not been mixed up. See Figures 19 and 20.
5. Cycle (unplug and then plug in again) the data cable to the keyboard.
6. WAIT AT LEAST FIVE SECONDS.
7. Select a monitor.

If you still cannot gain control of the system:

1. Confirm the wiring is correct and the user-supplied cable between wall jacks is appropriate for the application.
2. Confirm that when the keyboard data cable is cycled, the keyboard LED flashes momentarily (indicating power).

If you still cannot gain control of the system, call Pelco's 24-hour technical support at 1-800-289-9100 or 1-559-292-1981.

### USING A PC TO SEND ASCII COMMANDS VIA COM 2

The CM6700 will ignore ASCII commands issued to the COM 2 port from an external device (such as a PC) if (1) the commands are issued manually from a PC, AND (2) a system keyboard is connected to the local keyboard port. The CM6700 will respond with the acknowledgement string (AK or NA), but it will not execute the commands. Under these conditions the CM6700 will execute the ASCII commands if they are issued as strings from a text file or programmed function key. The problem exists only if keying the characters in manually.

Solution:

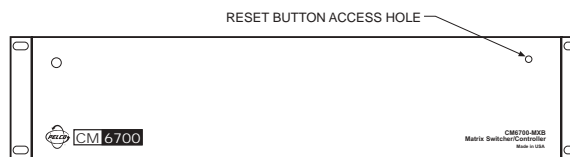
- 1) Disconnect any system keyboard from the CM6700 if you are manually keying in ASCII commands from a PC, or 2) do not key ASCII characters in manually. Write command strings to text files and send the file. If using Terminal in Windows 3.1, program the function keys with complete command strings.

### PERFORMING A SOFTWARE RESET



**CAUTION:**  
*Resetting the software restores the system to default settings. All programming is lost.*

Press the Software Reset button on the front panel (refer to Figure 22). The button is recessed to prevent accidental operation. Use a small screwdriver, pencil tip, or similar probe to operate the switch. Hold the switch in for about five seconds, and then release. The switcher will go through a software clear cycle and reset back to defaults. Re-initialize keyboards by entering the monitor number and then pressing the MON key.



**Figure 22.** Software Reset Button Location

**Table E. Solutions To Common Problems**

<b>Problem</b>	<b>Remedy</b>
CM6700 does not have power.	Make sure the power cord is plugged in.  Check the fuse. Refer to Figure 6 for the fuse location.
You can see some cameras and not others from your location.	Confirm that the camera is properly connected and has power.  The keyboard and monitor may have been denied access to the cameras.
The CM6700 does not respond to keyboard commands.	Confirm that the monitor the keyboard is addressing is the same as the monitor in front of you.
Pressing the PGM key displays a P on the keyboard LED but the Password menu does not appear on the menu.	Confirm that the keyboard transformer is plugged in and all electrical connections are in order.  Confirm that the monitor the keyboard is addressing is the same as the monitor in front of you.
Upon initial system startup, the alpha-numeric monitor display is in the middle of the screen or is not seen.	Jumper JP17 on the motherboard is in the wrong position. Remove the cover and change JP17 to the opposite position. Instructions for switching video termination jumpers in the <i>Set Options</i> section are a similar process.
Keyboards do not function after installation and initial power-up.	Confirm that all wiring is correct and that keyboards have power and are connected.  Confirm that all keyboards are addressed differently.
Previous system control has been lost.	First, try initializing the keyboard by entering the monitor number followed by pressing the MON key. If this does not restore control . . .  Second, try unplugging the data cable from the rear of the keyboard and then plugging it back in. Then re-initialize the keyboard. If this does not restore control . . .  Third, power down the CM6700, power back up, and then re-initialize keyboards. If this does not restore control . . .  Fourth, perform a software reset (refer to <i>Performing a Software Reset</i> in this section). If this does not restore control, call Pelco at 1-800-289-9100.
The unit malfunctions and you cannot restore it to satisfactory operation.	Perform a software reset (refer to <i>Performing a Software Reset</i> in this section).
The keyboard transformer must be replaced.	If a 12 VAC transformer is unavailable, you can use a 12 VDC transformer. Polarity is unimportant when wiring the transformer to the wall jack.

**Table F. Switcher/Controller and Keyboard RJ-45 Pin Functions**

<b>Switcher/Controller</b>		<b>Keyboards</b>	
<b>Pin</b>	<b>Function</b>	<b>Pin</b>	<b>Function</b>
1	RX+	1	TX+
2	RX-	2	TX-
3	12 VAC	3	12 VAC/DC
4	12 VAC	4	NON-POLAR
5	Ground	5	Ground
6	NC	6	NC
7	TX-	7	RX-
8	TX+	8	RX+

NC=no connection



## SPECIFICATIONS

### SWITCHING

Programmable Switching	
Duration:	User-defined between 1 and 99 seconds
Programmable	
Number of Steps	
per Sequence:	16
Maximum Number	
of Sequences:	4

### VIDEO INPUTS

Number of inputs:	16
Type:	75-ohm, unbalanced, terminating or looping; jumper-selectable
Level:	1 Vp-p
Connector Type:	Panel-mount BNC

### VIDEO OUTPUTS

Number:	4 (maximum)
Type:	75-ohm, unbalanced
Level:	1 Vp-p
Video Fail Detection	
Type:	Vertical sync detector
Action:	Switch to back-up sync generator
Connector Type:	Panel-mount BNC

### VIDEO SPECIFICATIONS

Bandwidth:	17 Mhz
Frequency Response:	Flat to 8 Mhz, $\pm 1.0$ dB to 15 Mhz
Gain:	Unity ( $\pm 1$ dB)
Differential Gain:	2% typical
Differential Phase:	0.2° typical
Tilt:	0.5% typical
Signal-to-Noise:	-55 dB (peak-to-peak vs. RMS noise)
DC Output:	Zero volts
Cross Talk:	-50 dB typical at 3.58 Mhz

### CHARACTER GENERATOR

Display:	White with black border
Program Menus:	Raster background with white characters

### KEYBOARD INTERFACE

Protocol:	Keyboard
Number of Ports:	1
Number of Independent	
Keyboards:	8
Data Rate:	9600 baud
Connector Type:	RJ-45, 8-pin modular (female)
Cable Type (supplied):	6 feet (1.8 m), flat, unshielded (may be shielded)

### ALARM INTERFACE INPUTS

Number of Inputs:	18
Connector Type:	12-pin screw terminal
Sensing:	Programmable, N.O./N.C.

#### AUXILIARY OUTPUTS

Number of Outputs:	3
Connector Type:	12-pin screw terminal
Contact Configuration	
F1:	Form C, 0.5 A at 125 VAC maximum
F2 and F3:	Open collector, 32 VDC at 25 mA maximum

#### POWER SUPPLY

Input Voltage:	120 VAC, 50/60 Hz or 230 VAC, 50 Hz
Power Consumption:	10 watts
Ambient Operating	
Temperature:	20° to 120°F (-7° to 49°C)
Humidity:	10–90% non-condensing

#### PHYSICAL SPECIFICATIONS

Dimensions:	17.0 (W) x 10.5 (D) x 3.5 (H) inches (43.18 x 26.67 x 8.89 cm)
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#### Weight

CM6700-MXB2:	9.39 lb (4.26 kg)
CM6700-MXB2-X:	9.47 lb (4.30 kg)
CM6700-MXB4:	10.15 lb (4.61 kg)
CM6700-MXB4-X:	10.06 lb (4.56 kg)

Rating:	NEMA Type 1
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*(Design and product specifications subject to change without notice.)*

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## REGULATORY NOTICES

This equipment has been tested and found to comply with the limits of a Class A digital device, pursuant to part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

## WARRANTY AND RETURN INFORMATION

### WARRANTY

Pelco will repair or replace, without charge, any merchandise proved defective in material or workmanship for a period of one year after the date of shipment. Exceptions to this warranty are as noted below:

- Five years on Pelco manufactured cameras (CC3500/CC3600 and MC3500/MC3600 Series); two years on all other cameras.
- Three years on Genex® Series (multiplexers, server, and keyboard).
- Two years on all standard motorized and fixed focal length lenses.
- Two years on Legacy®, Camclosure™ Camera Systems, CM6700/CM6800/CM8500/CM9500/CM9740/CM9750/CM9760 Matrix, DF5 Series and DF8 Fixed Dome products.
- Two years on Spectra® and Esprit™, including when used in continuous motion applications.
- Two years on WW5700 series window wiper (excluding wiper blades).
- Eighteen months on DX Series digital video recorders.
- Six months on all pan and tilts, scanners or preset lenses used in continuous motion applications (that is, preset scan, tour and auto scan modes).

Pelco will warrant all replacement parts and repairs for 90 days from the date of Pelco shipment. All goods requiring warranty repair shall be sent freight prepaid to Pelco, Clovis, California. Repairs made necessary by reason of misuse, alteration, normal wear, or accident are not covered under this warranty.

Pelco assumes no risk and shall be subject to no liability for damages or loss resulting from the specific use or application made of the Products. Pelco's liability for any claim, whether based on breach of contract, negligence, infringement of any rights of any party or product liability, relating to the Products shall not exceed the price paid by the Dealer to Pelco for such Products. In no event will Pelco be liable for any special, incidental or consequential damages (including loss of use, loss of profit and claims of third parties) however caused, whether by the negligence of Pelco or otherwise.

The above warranty provides the Dealer with specific legal rights. The Dealer may also have additional rights, which are subject to variation from state to state.

If a warranty repair is required, the Dealer must contact Pelco at (800) 289-9100 or (559) 292-1981 to obtain a Repair Authorization number (RA), and provide the following information:

1. Model and serial number
2. Date of shipment, P.O. number, Sales Order number, or Pelco invoice number
3. Details of the defect or problem

If there is a dispute regarding the warranty of a product which does not fall under the warranty conditions stated above, please include a written explanation with the product when returned.

Method of return shipment shall be the same or equal to the method by which the item was received by Pelco.

### RETURNS

In order to expedite parts returned to the factory for repair or credit, please call the factory at (800) 289-9100 or (559) 292-1981 to obtain an authorization number (CA number if returned for credit, and RA number if returned for repair). Goods returned for repair or credit should be clearly identified with the assigned CA/RA number and freight should be prepaid. All merchandise returned for credit may be subject to a 20% restocking and refurbishing charge.

Ship freight prepaid to: Pelco  
3500 Pelco Way  
Clovis, CA 93612-5699

## REVISION HISTORY

Manual #	Date	Comments
C523M	6/97	Original version.
C523M-A	10/97	Revised to add KBD300 keyboard information, update drawings, and expand troubleshooting section.
C523M-B	4/98	Revised keyboard installation instructions as a result of hardware changes to rear panel. Changed manual pagination.
C523M-C	9/98	Revised Section 4.2.5.
C523M-D	3/99	Corrected an error in Figure 6. Revised programming menus. Documented an option for programming patterns for Spectra®. Added Section 5.8, Programming Zones, and renumbered subsequent sections. Revised Figures 31 and 32.
C523M-E	6/99	Revised and reformatted entire manual. Added ASCII command information and some keyboard material.
	9/99	Added a Spanish menus option to the Password screen. Revised the Set Alarm Input and Set Time/Date programming menus and the procedures for setting alarm inputs and the time and date.
C523M-F	10/00	Revised and reformatted entire manual.
C523M-G	11/01	Revised Table D to add additional ASCII stop commands for pan, tilt, zoom, focus, and iris functions. These additional commands, which begin with a tilde (~), also work with the CM9760.